DPM 961

DU PONT

MATERIAL SAFETY DATA SHEET

IDENTIFICATION

NAME
Sulfuric Acid, 77 to 100%

GRADE
60° Tech., 66° Tech.,
1.835 Electrolyte, 98% Tech.,
99% Tech., 100% Tech.

CAS NAME
Sulfuric Acid

I.D. NOS./CODES
NIOSH Registry No. WS5600000

MANUFACTURER/DISTRIBUTOR
E. I. du Pont de Nemours & Co. (Inc.)

ADDRESS
Wilmington, DE 19898

CHEMICAL FAMILY
Mineral Acid

FORMULA H_2SO_4

CAS REGISTRY NO.
7664-93-9

PRODUCT INFORMATION PHONE
(800) 441-9442

MEDICAL EMERGENCY PHONE
(800) 441-3637

TRANSPORTATION EMERGENCY PHONE
CHEMTREC (800) 424-9300

PHYSICAL DATA

BOILING POINT, 760 mmHg
193 to 327°C (380 to 621°F)
See page 2 for specific grades

SPECIFIC GRAVITY 1.70 to 1.85
See page 2

VAPOR DENSITY 3.4

pH INFORMATION <1

FORM
Liquid

COLOR
Colorless to light gray

MELTING POINT
-35 to 11°C (-31 to 51°F)
See page 2

VAPOR PRESSURE
<0.3 mmHg at 25°C (77°F)
<0.6 mmHg at 38°C (100°F)

SOLUBILITY IN H_2O 100%

EVAPORATION RATE (BUTYL ACETATE=1)
<1

APPEARANCE
Oily; clear to turbid

ODOR
Odorless

E-79900 Date: 10/85

HAZARDOUS COMPONENTS

MATERIAL(S)		APPROXIMATE %
Sulfuric Acid	60° Technical	77.7
	66° Technical	93.2
	1.835 Electrolyte	93.2
	98% Technical	98.0
	99% Technical	99.0
	100% Technical	100

Physical Properties (from Page 1)

Grade	Boiling Point °C	Boiling Point °F	Melting Point °C	Melting Point °F	Specific Gravity
60° Technical	193	380	-12	10	1.706
66° Technical	279	535	-35	-31	1.835
1.835 Electrolyte	279	535	-35	-31	1.835
98% Technical	327	621	-2	29	1.844
99% Technical	310	590	4	40	1.842
100% Technical	274	526	11	51	1.839

HAZARDOUS REACTIVITY

INSTABILITY
Stable, but reacts with many chemicals.

INCOMPATIBILITY
Vigorous reactions occur with water; alkaline solutions; metals; metal powders strong oxidizing, reducing, or combustible materials. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides.

DECOMPOSITION
Releases sulfur dioxide at extremely high temperatures.

POLYMERIZATION
Will not occur.

FIRE AND EXPLOSION DATA

FLASH POINT Will not burn.

FLAMMABLE LIMITS IN AIR, % BY VOL.
LOWER Not applicable.
UPPER Not applicable.

AUTOIGNITION TEMPERATURE
Not applicable.

AUTODECOMPOSITION TEMPERATURE
Not available.

FIRE AND EXPLOSION HAZARDS
Reacts with most metals, especially when dilute, to give flammable, potentially explosive hydrogen gas.

EXTINGUISHING MEDIA

Water, dry chemical, carbon dioxide (CO_2) for fires in area. Use water spray to cool containers exposed to fire; do not get water inside containers.

SPECIAL FIRE FIGHTING INSTRUCTIONS

Generates heat upon addition of water, with possible spattering. Wear full protective clothing. Runoff from fire control may cause pollution. Neutralize runoff with lime, soda ash, etc., to prevent corrosion of metals and formation of hydrogen gas. Wear self-contained breathing apparatus if fumes or mists are present.

HEALTH HAZARD INFORMATION

PRINCIPAL HEALTH HAZARDS (Including Significant Routes, Effects, Symptoms of Over-Exposure, and Medical Conditions Aggravated by Exposure)

Causes severe burns to eyes, skin, and all body tissues.

Inhalation 1-hour LC50: 347 ppm in rats
Oral LD50: 2140 mg/kg in rats

The concentrated compound is corrosive to the eye and skin. Toxic effects described in animals from short exposures include irritation and corrosion of mucosal surfaces. Animal testing indicates that this compound does not have carcinogenic, mutagenic, developmental, or reproductive effects.

Human health effects of overexposure may initially include: eye irritation with discomfort, tearing, or blurring of vision, or skin irritation with discomfort or rash, irritation of the upper respiratory passages, or erosion of dental surfaces. Higher exposures may lead to these effects: eye corrosion with corneal or conjunctival ulceration, skin burns or ulceration, temporary lung irritation effects with cough, discomfort, difficult breathing, or shortness of breath, or possibly modest initial symptoms, followed in hours by severe shortness of breath requiring prompt medical attention. There are no reports of human sensitization. Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures.

CARCINOGENICITY

Not listed as a carcinogen by IARC, NTP, OSHA, ACGIH, or Du Pont.

EXPOSURE LIMITS (PEL (OSHA), TLV (ACGIH), AEL (DU PONT), ETC.)

The OSHA 8-hour Time Weighted Average (TWA) and ACGIH TLV®-TWA are 1 mg/m^3. The Du Pont AEL 8 and 12-hour TWA is 1 mg/m^3.

SAFETY PRECAUTIONS

Do not get in eyes, on skin, on clothing.
Keep containers closed.
Avoid breathing vapor or mists.
Do not add water to contents while in container because of violent reaction.
Wash thoroughly after handling.

FIRST AID

In case of contact: Immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash clothing and shoes before reuse.

If inhaled: Remove to fresh air immediately and have patient lie down and remain quiet. Apply artificial respiration, preferably mouth-to-mouth, if breathing has stopped. Give oxygen if breathing is difficult. Call a physician.

If swallowed: Do not induce vomiting. Give large quantities of water. Call a physician. Do not give carbonates. Never give anything by mouth to an unconscious person.

PROTECTION INFORMATION

GENERALLY APPLICABLE CONTROL MEASURES

Good general ventilation should be provided to keep vapor and mist concentrations below the exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Have available and wear as appropriate: coverall chemical splash goggles; acid-proof gauntlet gloves, apron, and boots; shirt and pants of wool, acrylic, or polyester fibers. In case of emergency or where there is a possibility of considerable exposure, wear a complete acid suit

DISPOSAL INFORMATION

AQUATIC TOXICITY

The 48-hour TLm in flounder is 100-300 ppm.

SPILL, LEAK OR RELEASE

Stop flow if possible. Soak up small spills with dry sand, clay or diatomaceous earth. Dike large spills, cautiously dilute and neutralize with lime or soda ash and transfer to waste water treatment system. Comply with Federal, State, and local regulations on reporting releases.

WASTE DISPOSAL

Comply with Federal, State, and local regulations. If approved, neutralize and transfer to waste treatment system.

SHIPPING INFORMATION

DOT (172.101)

PROPER SHIPPING NAME
Sulfuric Acid

HAZARD CLASS
Corrosive Material

UN NO. 1830

DOT LABEL(S) Corrosive

DOT PLACARD (TT/TC) Corrosive

DOT/IMO (172.102)

PROPER SHIPPING NAME
Sulphuric Acid

HAZARD CLASS
Corrosive Material, 8

UN NO. 1830

IMO (PAGE 8147)

PROPER SHIPPING NAME
Sulphuric Acid

HAZARD CLASS 8

UN NO. 1830

IMO LABEL(S) Corrosive

IATA/ICAO

PROPER SHIPPING NAME
Sulphuric Acid

HAZARD CLASS 8

UN NO. 1830

LABEL(S) Corrosive

PACKAGING GROUP NO. II

OTHER INFORMATION

REPORTABLE QUANTITY
1000 lb/454 kg

SHIPPING CONTAINERS
Tank cars; tank trucks, 55 gallon stainless steel drums

STORAGE CONDITIONS
Keep out of sun and away from heat, sparks, and flame. Keep container tightly closed and (drum) closure up to prevent leakage. Loosen closure carefully. Relieve internal pressure when received and at least weekly thereafter. Do not use pressure to empty. Be sure closure is securely fastened before moving container. Do no wash out container or use it for other purposes; replace closure after each withdrawal and return it with empty container.

ADDITIONAL INFORMATION AND REFERENCES

For further information, see Du Pont Sulfuric Acid "Storage and Handling Bulletin".

DATE OF LATEST REVISION/REVIEW: 8/85
PERSON RESPONSIBLE FOR MSDS: J. C. Watts, Du Pont Co., C&P Dept., Chestnut Run, Wilmington, DE 19898, (302) 999-4946

E-79900 Date: 10/85

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